# \*\*ATTENTION\*\*

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# <u>Urban Wildlife Project</u>

A Habitat Enhancement Area

As Close As Your Own Backyard

How To Create Your Own

Backyard Wildlife

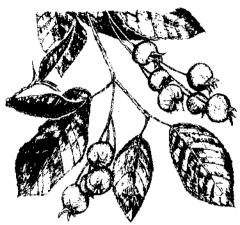
Habitat As seen at Lake Hills Greenbelt Ranger Station: 15416 SE 16th, Bellevue, WA

he Lake Hills Greenbelt Ranger Station backyard wildlife sanctuary was designed around the theme of increased diversity. It began as many city and suburb yards do - tall trees, flat grass, and a couple of bushes. Maybe that's your yard now; or maybe your yard has several plants and trees. But are they the best for wildlife, or placed so wildlife can take advantage of them? You may wish to make only small additions to your yard, or change it on a grand scale. Either way, you will be doing wildlife a favor - no matter how big your yard.

As you look around the Ranger Station yard, you will find examples of the Basic Needs and Habitat Qualities representing the three Ecological Principles discussed below. You will probably see that the principles can be applied simply and duplicate nature well, yet fit nicely into a backyard system.

## **Basic Needs**

Food - Seeds, berries, nuts, flower nectar, grasses, insects, algae
Water - Birdbaths, drip faucets, sprinklers, ponds, puddles, streams
Shelter - Trees, shrubs, brush piles, rock piles, rock walls, hollow logs, dead trees (snags), wildlife houses
Space - Corridors, territories, open space, sanctuaries



# 1 + 2 + 3 = DIVERSITY

In habitat, **diversity** is the spice of life! Many animals depend on several different kinds of plants and habitat types (meadows, forests, wetlands...). If you provide something of everything, your yard should attract many species. The following add up to increased **diversity**.

# THREE KEY ECOLOGICAL PRINCIPLES

### I VARIETY

Always provide several species of plants including grasses, flowers, trees, and shrubs, and both deciduous and evergreen plants.

# 2 edges

The zone between two habitat types is where the majority of wildlife species are. Provide a lot of edge with uneven borders-no straight lines. Pockets in the edge will also provide more secluded hiding places for wildlife (kids love them too!).

# 3 LAYERING

Most species of wildlife feed, nest, or rest only at certain heights. If you do not provide plants that grow at those heights, you lose the wildlife that normally lives there. Plant all the different layers of vegetation: ground cover, low shrubs, tall shrubs, small broadleaf trees, tall broadleaf trees, and tall conifers.

# HABITAT QUALITIES Corridors

Wildlife needs continuous lanes of habitat through which to safely travel. Notice that the Native Woodland Edge extends all along one side of the yard and the Upland Edge is continuous with the pond habitat which then connects with vegetation leading all the way to the greenbelt.

#### Sanctuaries

Set aside a quiet, undisturbed area that you only occasionally visit. Confine your activity areas as much as possible and direct human traffic with walks or seating areas. Notice there are no walkways by the Woodland Edge which is the Ranger Station's quiet space. Always clump vegetation (not rows) to provide more "interior" habitat. Provide rock and brush piles for perching and hiding.

#### **Buffers**

Plant shrubs and trees between your activity areas and the sanctuaries so wildlife will be screened from people. Use plants that act as natural fences such as those with thorns or thick growth. As the shrubs fill in, our pond will be buffered from the parking lot. The trees on the west side of the deck act as a blind for viewing the pond.

#### Seasons

Plant a variety of plants that bloom and fruit at different times of the year. Provide both summer and winter protection with evergreen trees and shrubs.

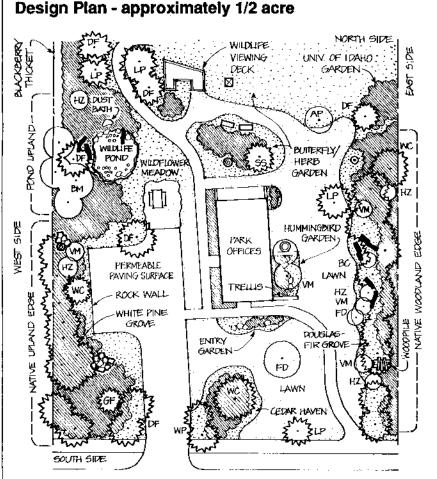
#### **Native plants**

The wildlife of your area is best adapted to native vegetation. These plants are, in turn, best suited for your region and can survive with much less care than exotic or nonnative plants. If possible, select a portion of your yard that you can leave shrubby and un-pruned. Our "wild" areas will be the northwest corner of the yard between the Community Gardens and the pond, and behind the Woodland Edge.

For you Establish viewing areas where you can see and visit your backyard wildlife. Not all areas must be sanctuaries. Many species of wildlife are comfortable around people if the people remain relatively quiet. From our deck you can see the pond, Butterfly Garden, and Woodland Edge. The Hummingbird Garden is just outside the window of the Ranger Station visitors' room. The Butterfly Garden is also a culinary and medicinal herb garden from which you as the homeowner may harvest. Many of the shrubs such as serviceberry, salal, and Indian plum have edible berries for people.

ake Hills Greenbelt Ranger Station is made up of several "elements" or "specialty gardens" for ease of demonstration. You may blend and transition these elements any way you wish, taking care to supply as much of the basic needs as you are able, and follow the three ecological principles. To make big changes easier, you can "phase" your yard, installing different elements over a period of time. The Ranger Station habitat was developed over approximately one and a half years. Before you begin your enhancement, draw out a plan similar to the one below no matter how small your improvement; it's far easier to change a drawing than it is a yard. The plan will give you direction and help you phase your project, if needed. For more detailed habitat design techniques, examples, and habitat information, you may order the Washington Department of Wildlife's publication "Landscape Design for Wildlife".

### LAKE HILLS GREENBELT WILDLIFE HABITAT DEMONSTRATION YARD



#### LEGEND



BIRDBATH





WOODPILE SHRUBS



GROUNDCOVER

LODGEPOLE PINE

W. WHITE PINE



BM

APPLE BITTER CHERRY BC BIGLEAF MAPLE HΖ 95 VM

SITKA SPRUCE VINE MAPLE

HAZELNUT

DOUGLAS-FIR FLOWERING DOGWOOD FO GRAND FIR

WC W. RED CEDAR

NOTE: Some plants that you buy in nurseries have been made to be sterile. These will not produce nuts, seeds, or berries. Make sure you get non-sterile plants by asking the nursery or they will have no food value for most wildife.

#### HUMMINGBIRD GARDEN (P- PERENNIAL, A- ANNUAL)

COLUMBINE (P) DELPHINIUM (P) SWEET WILLIAM (P) FOXELOVE (P) WILD STRAMBERRY (P) FUCHSIA (A) HARDY FLICHSIA (A) CORAL BIELLS (P) CARDINAL PLOWER (P) HONEYSUCKLE (P) LUPINE (P) WINGWORT (P) SCARLET BERGAMOT (P) SCARLET PENGIEMON (P) NATIVE PENSIEMON (P) SCARLET RUNNER POLE BEANS (A) PHASEOLUS COCCUNEUS PHLOX (P)

FALSE DRAGONHEAD (P)

HUMMINGBIRD FUCHSIA (P)

BALLOON FLOWER (P)

AQUILEGIA SPP. DELPHINIUM ELATUM DIANTHUS BARBATUS DIGITALIS PURPUREA FRAGARIA GPP. FUCHSIA SPP. FUZHSIA SPE HEUCHERA SANGUINEA LOBELIA CARDINALIS LONICERA SPE LUPINUS SPP. MERTENSIA SPT. MONARDA (2005/44) PENSTEIMON BARBATUS PENSTEMON SPT. PHILDX SPP. PHYSOSTEGIA VIRGINIANA PLATYCODON GRANDIFLORUS RED FLOWERING CURRANT (P) RULES SANGOINEUM ZAUSCHNERIA LATIFOLIA

See Hummingbird Garden pamphlet for more detail.

#### POND UPLAND

SERVICEDERRY LADY FERN RED #SIEK DOGWOOD HAZELNUT FIREWESD SALAL TOUGH: ME: NOT INDIAN PLUM NINEBAKK SWORD FERN SELF HEAL MARSH CURRANT WOOD ROSE KED ELDERBERKY EVERGREEN HUCKLEBERRY HIGHBUSH CRANDERICY WILDFLOWERS & GRASSES MIX

AMELANCHIER AUNIFOLIA ATHYRIUM FILLX-PEMINA CORNUS GUILONIPERA CORMLUS CORNUTA EPILOBIUM ANGUSTIFOLIUM GAULTHERIA SHALLON IMPATIENS NULL TANGERE OSMARONIA CERAGIFORMIS PHYSOCARPUS CAPITATUS POLYSTICHUM MUNITUM PRUNELLA VULGARIG RIBES LACUSTRE ROSA SPP. SAMBUCUS RACEMOSA VACCINIUM OVATUM VIBURNUM APULUS

#### POND

YELLOW FLAG MARSH CINCULEROIL AKROWHEAD (WAPATO) HARDSTEM BULKUSH BURKEED CATTAIL SERVES

IRIS PSEUDACORUS POTENTILLA SPE SAGITTANIA SPP. SCIKPUG ACUTUS SPARGANIUM SPP. TYPHA LATIFOLIA

#### ENTRY GARDEN

RED OSIEK DOGWOOD DWARF RED OSIER OCCIMODO FOXOLOVE SWORD FERN CREEPING SHOWBERRY WHITE THYME, RED THYME

COKNUS STOLONIFERA CORNUG STOLONIPERA "KELSEYI" DIGITALIS PURPUREA POLYSTICHUM MUNITUM SYMPHORICARDS MOLLIS THYMUS SPP.

#### BUTTERFLY GARDEN

TREES & SHRUBS VINE MAPLE WILD BLUE LILAC SALAL LOW OREGON FRAME INDIAN PLUM JOSO BEKRY SITKA SPRUCE MOCK ORANGE

RED FLOWERING CURRANT NATINE ROSE. KED ELDERBERKY SNOWBERRY EVERGINEEN HUCKLEBERRY RED HICKLEBERRY

PLOMPRO É HERBO (P. PERENNIAL, A. ANNUAL) YAKROW (P) COLUMBINE (P) PROTERELY BUSH (P)

ekight star (P) GLOBE THISTLE (P) FENNEL (P) LAVENDER (P) LEMON BALM (P) PEPPERMINT, SPEARMINT (P) PERGAMOT (P) SWEET MARJORAM (P) PARSLEY (A) SELF HEAL (P) UPINGHI ROSEMAKY (Y) SAGE (P) (SOLDENROD (P) THYME (P) COLTSFOOT (P)

ACER CIRCINATIIM CEONOTHUS VELLUTINUS GAULTHERIA SHALLON MAHONIA NERVOSA OSMARONIA CERAGIFORMIS PICEA SITCHENSIS

PHILADELPHUS LEWISH RIBES BANGUINEUM ROSA NUTKANA SAMBUCUS RACEMOSA SYMPHORICARPOS ALBA MAGGINIUM OVATUM VACCINIUM PARVIFOLIUM

ACHILLEA SPP ANULERIA SPE BUDDLEIA CRISPA ECHINACEA SPP. ECHINOPS RITRO FOENIGULUM SPE LAVENDULA ANGUSTIFOLIA MEUSSA OFFICINALIS MENTHA SPP. MONARDA DIDYMA

PRUNELLA VULGARIS KOSEMAKINUS OFFICINAUS GALYIA SPP. SOUTHED BEY THYMUS SPP TUSSILAGO FARFARA

ORIGANUM MARJORANA

PETROSELINMUM SPP.

NATIVE WOODLAND EDGE

VINE MAPLE PACIFIC FLOWERING DOGWOOD CORNUS NUITALII HAZELNUT BILLIER CHERRY

DOUGLAS-FIK W. RED CEDAR W. HEMLOCK

SHKU85 PUNCHBERRY SALAL TALL OKEGON GRAPE LOW OREGON GRAPE INDIAN PLUM/050 BERRY SALMONDERRY

THIMBLEBERRY NATIVE ROSE SN/WBERRY EVERGREEN HUCKLEBERKY REIZ HILYKLERENRY

FLOWERS & HERES LADY FERN BLEEDING HEAKT MINERS LETTICE SWORD FERIN FRINGE COP Plagy-back plant TRILLIDM BLUE VIOLET

TRUE WOLET VELLOW VIOLET

ACER CIRCINATUM CORYLUS CORNUTA PRUNUS EMARGINATA PSELXXXTSUGA MENZIESII

THUMA PLICATA TSUGA HETEROPHYLLA

CORNUS CANADENSIS GALLTHERA SHALLON MAHONIA AQUIFOLIUM MAHANIA NERVOSA OSMARONIA CERAGIFORMIS RUBUS SPECTABILIS RUBUS PARVIPLORUS ROSA NIUTKANA È ROSA RUSOSA SYMPHORICARPOS SPP.

VACCINIUM OVATUM VACCINIUM PARVIFOLIUM

ATHYRIUM FILIX-FEMINA DICENTRA SPP. MONTIA PARVIFOLIA OXAUS OKEGANA POLYSTICHUM MUNITUM TELLIMA GRANDIFLORA TOLMIEA MENZIEGII TRILLIUM SPP. VIOLA LABRIDORICA VIOLA ODONATA

VIDLA SEMPERVIRENS

See Native Woodland Edge pamphlet for more detail.

#### NATIVE UPLAND EDGE

TREES GRAND FIR VINE MAPLE HAZELNUT W. WHOTE PINE DOUGLAG-FIR

W. RED CEDAR

ABIES GRANDIS ACER CIRCINATUM CORMUS CORNUTA PINUS MONTICOLA PSPUDOTSUGA MENZIESII THILLA PLICATA

AMELANCHIER AUNTFOLIA

ARCIOGRAPHYLLOG TUVA-DRSI.

SHRUBS, FLOWERS & HEROLD

SERVICEPEINEY KINNIKINNEX SALAL **COEANSPRAY** HONEYSYCKLE TALL OREGON GRAPE LOW OREGON GRAPE SWORD FERN NATIVE ZOSE

GAULTHERIA SHALLON HOLODISCUS DISCOLOR LONICERA SPP. MAHONIA AQUIFOLIUM MAHONIA NERVOSA POLYSTICHUM MUNITUM KOSA NUTKANA I ROSA RUGOGA RED ELDERBERKY SAMBUCUS RACEMOSA SNOWBERKY SYMPHORICARPOS SPP. EVERGINEEN HIZKLEBERKY VACCINIUM OVATION RED HUCKLEBERKY VACCINIUM PAKVISOLIUM HIGHBUSH CRANDERKY VIBURNUM OPULUS

#### CEDAR HAVEN

VANILLA LEAF Perk Pekn PUNCHBERRY PAUSE LILY OF THE VALLEY LOW OREGON ERAPE SWORD PERN WINTERSREEN RED ELDEKBERKY FALSE SOLOMON'S SEAL **SNOWBERRY** TRILLIUM

ACHLYG TRIPHYLLA BLECHNUM SPICANT CORNUS CANADENSIS MAIANTHEMUM DILATATUM MAHONIA NERVOSA POLYSTICHUM MUNITUM PYKOLA SPP. SAMPLICUS RACIEMOSA SMILACINA RACEMOSA SYMPHORICARPOS SPP. TRILLIUM OVATION

Avoid using pesticides. For alternatives contact: the Center for Urban Horticulture, Elisabeth C. Miller Library, University of Washington, Seattle, WA (206) 543-8616; Bio-integral Resource Center, P.O. Box 7414, Berkeley, CA (415) 524-5467; Northwest Coalition for Alternatives to Pesticides, P.O. Box 1393, Eugene, OR 97440, (503) 344-5044. As more and more birds begin visiting your yard, they will control most of the insects,

#### Does habitat enhancement work?

Yes - but which and how many species of wildlife you attract to your backyard habitat can also depend upon where you live and what kind of plants and habitat are in your neighborhood. The Ranger Station is on approximately 1/3-1/2 acre with mature conifers and a nearby a greenbelt. Surrounding vegetation in the neighbors' yards is also somewhat mature. See if you can talk your neighbors into their own habitat enhancement plan.

This is how we think the list of birds might change in our yard after enhancement (we've already had new visitors!):

#### Birds Commonly Seen In Our Yard Before Enhancement

Black-capped Chickadee American Robin House Sparrow **Rufous-sided Towhee European Starling** House Finch Dark-eyed Junco Stellar's Jay

\*House Sparrows & European Starlings may decrease because of improved habitat for other species.

#### Some of the Birds We Expect After Enhancement\*

Black-capped Chickadee Chestnut-backed Chickadee American Robin Varied Thrush Rufous-sided Towhee

Dark-eyed Junco Stellar's Jay Northern Flicker Downy Woodpecker

Bushtit Red-breasted Nuthatch

Bewick's Wren Golden-crowned Kinglet

American Goldfinch Pine Siskin **Rufous Hummingbird** Violet-green Swallow Cedar Waxwing Song Sparrow White-crowned Sparrow Yellow-rumped Warbler Wilson's Warbler **Evening Grosbeak** 

Ruby-crowned Kinglet

House Finch

California Quail

Birds That Might Use Our Yard After Enhancement

Sharp-shinned Hawk Cooper's Hawk American Kestrel Merlin Screech Owl Great Blue Heron Mallard Duck Wood Duck **Belted Kingfisher** Pileated Woodpecker Olive-sided Flycatcher Hermit Thrush

#### **Build a Backyard Pond**

There are several ways to construct backyard ponds. Most homeowners will probably not want one the size of ours at the Ranger Station. Much smaller ponds invite wildlife and provide necessary water - one of the four basic needs.

#### Tips

1. Select a location that gets at least 5 hours of sun daily. 2. No more than 1/2 the pond's surface should be covered by plants. 3. Ponds under deciduous trees collect fall leaves; remove these to allow in sunlight and prevent oxygen depletion by leaf decomposition. 4. Use a garden hose or rope to outline the pond shape as

you dig. S. Plan a finished pond depth of 18-24 inches. S. When excavating, be sure to allow depth for amount of fill or sealant you need. T. Consider what wildlife you want to attract; songbirds need very shallow edges, make a gradual slope, preferable for most wildlife. S. Know where your finished water level will be, this will be the lowest

point of the pond's rim, if you want sides to be even with each other, use a level.

Solite the pond within reach of a garden hose. 10. Plan how you will drain the pond if needed. 11. Consider how the pond might flood in a heavy rain.

12. Know where buried gas lines and electric cables are.

#### Options for pond construction

**#1 Bare soil.** This is the simplest and only requires a sealed hole in the ground. Seal with bentonite clay available at building supply stores (unless you have impermeable clay soil) and cover with washed sand for planting.

#2 Flexible liner. A ledge must be dug around the pond on which to secure and conceal the liner with rocks. The liner's edge must be above water level or your pond will leak; bend liner up the side of the ledge about 1 - 2 inches so you can cover the ledge with water. TetraPond makes polyethylene liners for backyard ponds and are available at some of the larger pet stores as "fish" ponds. Kits include complete instructions. Or, PVC liners may be ordered from Lilypons Water Gardens, 6800 Lilypons Rd., Lilypons, MD 21717-0010 (write for catalog).

#3 Concrete pond. This technique is best left to professionals with experience in installing swimming pools and ponds. There are difficulties associated with concrete ponds, not the least of which are cracks and leakage. Cement almost always leaks. Our pond was professionally "shotcrete" blown for a more natural appearance. Look under "Swimming Pools" in the Yellow Pages to find builders who install gunite or "shotcrete" decorative ponds. Avoid landscape contractors who do not have much experience with ponds and who use cement.

Plants, soil, and special features: Cover the bottom of your pond with 6-8 inches of washed sand (most soils contain organic material that floats and clouds water), add water fertilizer (call Pacific Wet-lands Nursery for the correct one (206) 297-7575). Better yet plant in containers made of anything but copper or cedar. Plants, especially cattails, will take over your pond if they are not contained. To pot plants, line the container, if it has drain holes, with a permeable fabric such as webbing; fill about 1/4 up with sand, another 1/4 with sandy soil, plant plants, fill up remainder with sand. Some

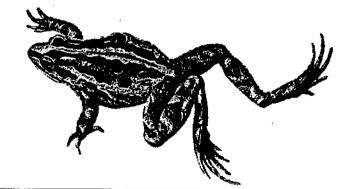
escape of soil and sand is OK. All three plant groups are necessary for a healthy pond: 1. submergent = rooted in soil with leaves under water (pondweeds); 2. floating = leaves float on water surface (duckweed, waterlily); 3. emergent = rooted in soil with leaves stand-ing upright above water (cattails, rushes, arrow head). Atways let the water in your pond sit for 1 week after filling to dissipate chlorine before adding plants. Install logs and rocks that stick out the water's surface for animal escape routes, and as frog and salamander habitat. Be aware that cats stalk birds from thick shrubs around a pond. Have a tree close by for escape.

Maintenance: Pumps and circulating water are generally not needed to maintain a healthy pond. Oxygenating plants, fish that keep algae and mosquitos under control, and snails that clean up decayed matter should help maintain the balance. Cleaning need only be done infrequently.

Permits: Always call your city and county to see if a permit is needed and if zoning allows for a pond. Permits and fences are often needed for larger, deeper ponds. Do you have a septic tank or sewer? Find out where the drain field for your septic tank is; call the health department and ask how far the pond must be from the drain field.

A helpful publication: Urban Wildlife Manager's Notebook -- 2 "A Simple Backyard Pond"

Write to: The National Institute for Urban Wildlife, 10921 Trotting Ridge Way, Columbia, MD 21044.



# Be patient with your backyard

It takes 2 to several years for shrubs to mature and provide the most food and cover, and it may take a year or two before wildlife discovers your yard. The fastest maturing gardens are the Hummingbird and Butterfly Gardens. These flower the first season.

#### Register your yard as a Backyard Wildlife Sanctuary

When you feel you're ready, you can apply for the Department of Wildlife's Backyard Sanctuary certificate and outdoor sign designating your yard as wildlife habitat and you as a backyard habitat manager. Write to the address on the back of this pamphlet, ATTN Backyard Sanctuary Program.

#### SPECIAL THANKS TO:

Recreational Equipment, Inc. (REI), Believue, which adopted the Urban Wildlife Project for two years as its community service project, coordinating volunteer recruitment and training for the volunteer workdays. REI people also volunteered as workers:

University of Washington Department of Landscape Architecture students and Sally Schauman, Chair, for contributing to much of the backyard design and for lending assistance during installation;

Community volunteers who donated their time, tools, and expertise to create the Urban Wildlife Project ranger station gardens.

Marenakos Rock Center, Issaquah WA contributed rocks for the native penstemon rockery and entry garden; Luce Logging, Issaquah WA donated the nurse logs.

The Ranger Station habitat demonstration is a cooperative project between Washington Department of Wildlife and Bellevue Parks and Recreation Department. This pamphlet produced by Washington Department of Wildlife.

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#### For More Information

write or call:

Washington Department of Wildlife Urban Wildlife Project

16018 Mill Creek Blvd. Mill Creek, WA 98012 (206) 775-1311

or visit

City of Bellevue Parks & Recreation Department Lake Hills Greenbelt 15416 SE 16th Bellevue, WA

#### SOURCES

#### **Native Plant Nurseries**

Flora Springs Nursery (206) 271-8311 Renton, WA Pacific Wetland Nursery (206) 297-7575 Kingston, WA Storm Lake Growers (206) 794-4842

Snohomish, WA Wholesale and larger private orders

The **Pacific Northwest Native Plant Directory** (a comprehensive nursery guide) can be ordered from HORTUS NORTHWEST, P.O. Box 955, Canby, OR 97013, (503) 266-7968.

Native plant or other gardening information may be obtained from Washington State University Cooperative Extension offices located in each county (all area code 206): King Co. 296-3986; Pierce Co. 591-7180; Skagit Co. 336-9322; Snohomish Co. 338-2400; Thurston Co. 786-5445; Whatcom Co. 676-6736. The "Specialty Nursery Guide" is available free at King Co. and Snohomish Co. Extension offices or by calling 568-7046.

Native plants may be collected on public lands but permits must be obtained from the appropriate agency (Forest Service, WA Dept. of Natural Resources, etc.). For information call Mount Baker-Snoqualmie National Forest public relations office at (206) 442-5400. When collecting native plants, take only a few, do not take the entire population. If there are only a few individuals of one kind of plant, do not take any from that species. For more information on native plants and collecting from the wild contact The Washington Native Plant Society.

Lake Hills Greenbelt Ranger Station backyard habitat demonstration is located at: 15416 SE 16th, Bellevue, WA